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Understanding Psychophysiological Correlates of User Experience using Electroencephalogram (EEG)

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ABSTRACT

The objective of this research is to understand psychophysiological correlates of user experience using electroencephalogram (EEG). We will conduct an experimental study to assess the psychophysiological differences across three states of user experience – flow, boredom, and anxiety – and compare them with the neutral state as a baseline. EEG measurement provides a plethora of data that can be decomposed using different analytical procedures. We will utilize one type of analysis, time-frequency decomposition, to examine changes in frequency (e.g., alpha/beta/theta band) over time. These frequency bands correlate with different cognitive states. In this study, we will use Event Related Spectral Perturbation (ERSP), a type of time-frequency decomposition, for its ability to model both time and frequency changes occurring in a frequency band. We expect the findings to not only contribute to a better understanding of psychophysiological means of assessing user experience, but also provide implications for future research in brain-computer interface.